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France

Fountains arch in the Place de la Concorde, heart of Paris, heart of France.

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cold winters at the north to the sultry air of the sun-kissed Mediterranean shore.

In height, France begins below sea level along the Rhône River delta and stretches up three-mile-high Mont Blanc. Natural boundaries separate France from most of its neighbors. The Pyrenees cut off Spain, the Alps block out Italy, the Jura Mountains wall off Switzerland. The Rhine and the English Channel divide France from Germany and England. Only the northeast frontier, with Belgium, Luxembourg, and part of Germany, is manmade.

Man became a part of the picture more than 30,000 years ago. He drew murals on the walls of caves and dedicated carved stones to his gods.

Caesar invaded France, or Gaul, as he knew it, conquering it by 51 B.C. His legions settled down for a 300-year occupation. The French adopted Roman togas and added Latin words to their language. Today the French tongue is based on Latin; French law, on Roman law. Monuments of the Roman occupation—amphitheaters and bridges—spot the landscape.

WALTER MEAYERS EDWARDS, NATIONAL GEOGRAPHIC STAFF

The Nose—A man with an olfactory memory, the creator of new perfumes sniffs a scented strip of paper as he works on the formula for a new fragrance in Grasse, France's perfume capital. He can identify 4,000 substances by smell.

JUSTIN LOCKE

Later, Germanic tribes crossed the Rhine and settled in many parts of France. British Celts crossed the channel to Brittany; today their descendants speak a dialect similar to Welsh. Vikings from Scandinavia raided the French coast. Frenchmen called them Normans because they came from the north. These Scandinavians took over a fertile province on the English Channel and called it Normandy.

All these people mingled, and still the process continues. In this century Fascism and Communism pushed refugees to France in search of freedom. Men from other European countries and from North Africa have come in search of work. The total makes a French population as varied as its geography, ranging from tall, blond, and blue-eyed; to short, dark-haired, and olive-complexioned. The telephone directory of any large city shows a group of names as mixed as a similar

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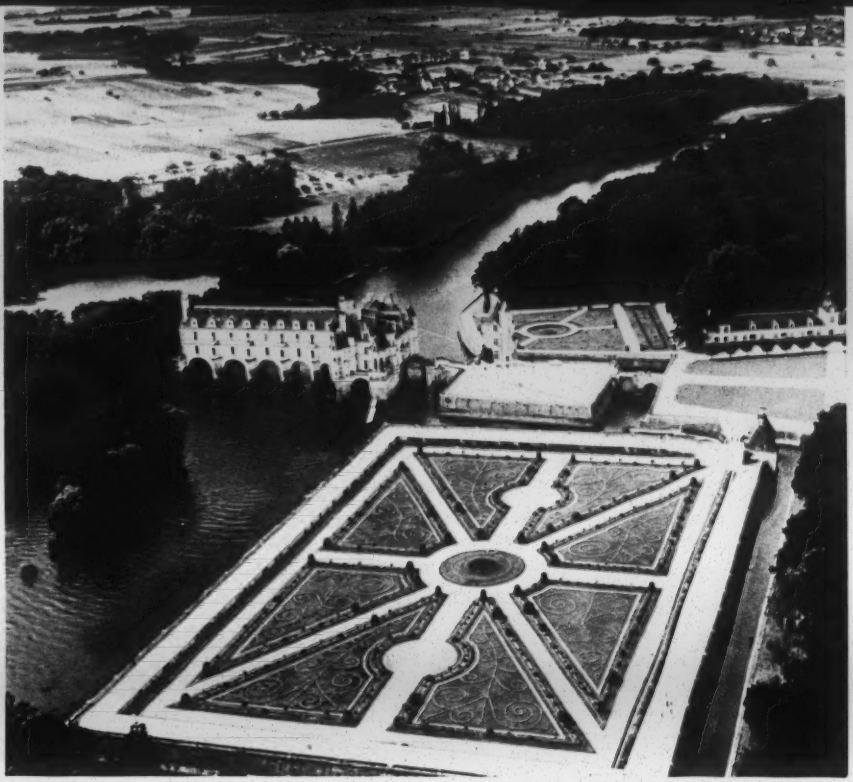

LOUIS RENAULT. COVER, JUSTIN LOCKE

The Wonderful World of France

"PARIS IS NOT A CITY, it is a world," Charles V of Spain once said. He could have applied his comment to the whole of France.

Old, yet bustling with new energy, France is a land of chateaux, like Chenonceaux, above, four-hundred-year-old castle bridging the river Cher. It is the fourth atomic power of the world, but also a land of the Breton fisherman who braves Atlantic swells as far as Iceland, and of the Le Puy maid who keeps one eye on her crocheting and the other on her grazing cows. It is a land of perfume, couture, and cuisine—jet airplanes and new dams.

Paris is France's head and heart. It serves as fashion window for the world, tourist Mecca, center of art and literature. The capital also minds the nation's stomach. To Les Halles (below left), comes tons of food daily for the city's 6 million people and for transshipment to the entire country.

Nature has splashed France with nearly all the colors of the palette. The largest European nation west of the Soviet Union, France includes rocky Alps, eternally white-capped, soaring to the sky. Blue-green lakes lie quietly in valleys. White-sanded beaches are eternally washed by the blue Mediterranean and the brown North Sea. High gray palisades march along the northwest coast. Green rivers snake through verdant lowlands. Chestnut forests blanket rolling hills.

Nature gives France several climates, too, ranging from hot summers and bleak,

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La grande cuisine is a French specialty, be it a feast graced with superb wines or a simple picnic of crusty fresh bread and a wedge of rich cheese.

red sails put out from Brittany's rocky coast, returning late in the afternoon. The fishermen below stroll in the Normandy port village of Honfleur.

Land and sea offer their bounty, but man helps with thriving industry. Belching smokestacks—twice as many as before World War II—stab the sky in the northeast. Fed from near-by coalfields and iron mines, factories turn out textiles, leather goods, glassware, iron and steel. Lyon, a silk center since the 16th century, still pours forth delicate fabrics, plus chemicals, electrical machinery, automobiles, and computing machines. In Alsace, textile mills hum.

New automatic systems control the production of automobiles and plate glass. New dams rise.

"Projects like these, together with new atomic-energy power plants and fresh sources of oil and gas, will help to feed French industry, growing at a phenomenal rate," writes Walter Meayers Edwards, in the June, 1960, *National Geographic*. "They hold the promise of a bright new era for France—one that makes it 'exciting to be a Frenchman these days' as a friend put it. Yet the essence of France remains unchanged. To be a Frenchman has always been exciting." L.B.

HOWELL WALKER, WALTER MEAYERS EDWARDS, NATIONAL GEOGRAPHIC STAFF, ABOVE

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book in the United States.

From this varied landscape and different origins, the French have built a nation. Religious men, they glorified God with cathedrals which rank among the greatest buildings of the world. In Chartres, for example, they raised a Christian church on the site of a Roman temple. After a fire in 1194, rulers from all over Christendom sent gifts to reconstruct the cathedral. Others gave labor. Some gave both. For 25 years monks, merchants, nobles, gentlewomen, peasants, and laborers worked together to complete the main structure, a soaring proof that "architecture is music frozen in stone."

In feudal times, lords raised fortresses – chateaux – as residences and refuges for the people of the neighborhood. Then artillery made the forts of little defensive value, and the chateaux became houses for dukes and counts and barons. The Renaissance saw them grow in magnificence and change into estates where royalty hunted and took their ease. Some of the most beautiful can still be seen in the Loire Valley.

JUSTIN LOCKE

Nature etched France with a network of rivers. Men added canals to make ports many miles from the sea. The family aboard the barge (above) plies these waterways to bring Paris coal from the north, wines from the east and south, grain and building materials from almost every direction.

The soil of France has always been one of its greatest natural resources. About three out of every 10 Frenchmen still till it for a living. Many still plow tiny fields with cow-power, but tractors have multiplied 16 times since World War II.

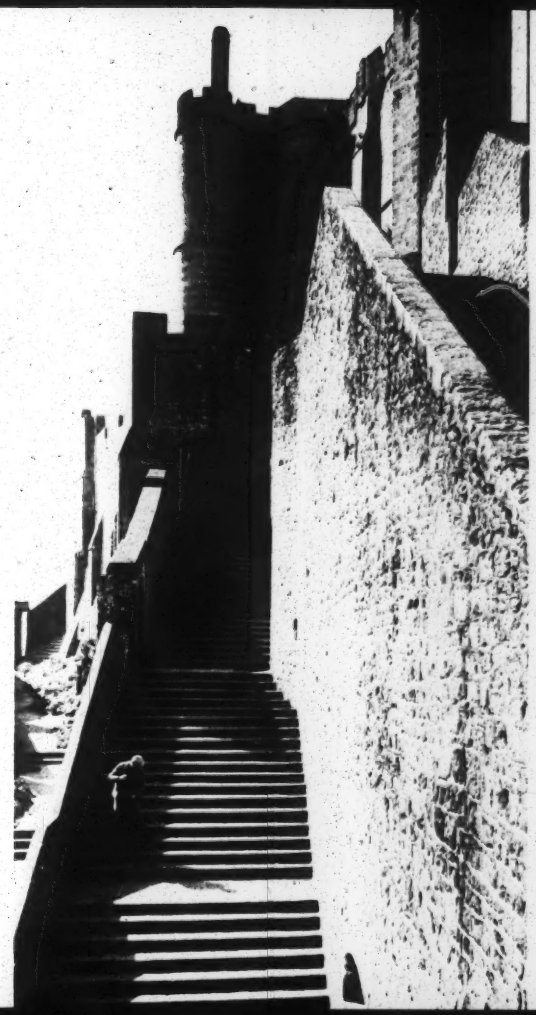
In the fertile north a long sunny summer and more than 30 inches of rain a year bring bumper crops of wheat and other grains, sugar beets, and potatoes.

Normandy, mild and wet from winds off the Atlantic, is covered with bounteous orchards and meadows offering apples and dairy products – milk, butter, and cheese (see page 44). Vegetables, wheat, and olives ripen under the sun of the south where beef cattle graze all year.

Around Grasse, southerners turn fragrant flowers – lavender, jasmine, rose, narcissus, jonquil, violet, tuberose, mimosa – into famous perfumes.

For hundreds of years Frenchmen have planted grapevines on their hillsides and turned the juice into wine. Today they turn out 540 types.

In a land touched by the Mediterranean, the Atlantic, and the English Channel, fishing has long been important. Each day, the orange, yellow, and



PHOTOGRAPHS BY HOWELL WALKER, NATIONAL GEOGRAPHIC STAFF

roughly comparable to building a chapel on top of the Washington Monument. Monks brought granite from near-by islands across treacherous quicksands and through fearsome tides. By brute force, they wrestled their blocks to the summit and placed them by hand, erecting a 200-foot platform supported by walls 80 feet high.

On this they built their church, crowned with a statue of St. Michael standing 500 feet above the sea. Engineers even today stand in awe of the feat.

The work took centuries. As the abbey grew, it became a shrine for thousands of pilgrims and crusaders. Its vaulted halls and cloisters held a center of learning and art for all Europe. The abbey became so wealthy it was able to send six ships to help William the Conqueror invade England in 1066.

In the refectory the abbot could entertain 200 guests for dinner. Jongleurs, or minstrels, accompanied their kings and knights in pilgrimages to the mount. At night they sang epic poems of kingly valor.

Until 1880 the only way to get to the mount was to walk across the sand flats at low tide. Kings and bishops picked their way unshod through salty puddles, holding high their robes. Many pilgrims were lost in the quicksands, or swept away in rushing tides.

Today's traveler may drive to the base of the mount. But once through the gate, he must climb the single, narrow street and 662 steps to reach the abbey. Tiny houses, many centuries old, cling to the ancient rock like barnacles.

Above the hubbub of the village, the visitor finds the strong, silent buttresses of the great building, and wanders through graceful, vaulted rooms, such as the Knights' Hall, right, where stones and columns still reflect the glory of medieval France.

K.C.

UMI

Normandy's Sea-Swept Prayer in Stone

ROGER HENRARD

Like a giant granite jewel dropped from some other age onto the flat coast of Normandy, Mont St. Michel embodies the strength and beauty of French piety.

This medieval abbey, with its surrounding village, was built on a great pyramid of rock washed by tides of the English Channel. So well was the work done that the masonry buildings appear to be one with the rock, to grow from it as naturally as trees from a meadow.

To understand this miracle we must reach far back in time, before France became a political whole, and when religion was the most powerful unifying force in men's lives.

In the year 709 the Archangel Michael appeared in a vision to the Bishop of Avranches and commanded him to build a sanctuary here, high above the surrounding sands.

In the 11th century, Abbott Hildebert began construction of the present abbey. Instead of leveling part of the rock for a foundation, he used the highest peak as his floor level—a task

WALTER MEAYERS EDWARDS, NATIONAL GEOGRAPHIC STAFF

countries, where the resulting cheese is cured in rooms carefully re-creating the temperature and humidity of the original caves—although only the produce of Roquefort, France, is allowed to be sold under that name.

The most popular cheese in the United States—about a billion pounds produced each year—is cheddar. Originally English, it became so popular here that it is also known as American cheese.

Much cheddar is ground, blended, and pasteurized to make the familiar loaves of "process cheese," popular for uniform flavor, good keeping qualities, and smooth melting.

NATIONAL GEOGRAPHIC PHOTOGRAPHER VOLKMAR WENTZEL

From milk to cheese—Steps in the making of cheese are shown, from the source of milk—in this case a French goat—through the "combing" of the curd in an Italian village to the aging of the finished cheeses to bring out full flavor. The Camembert rounds below, originally known only in their native French village, achieved wide fame when Napoleon sampled some and pronounced them excellent.

HOWELL WALKER, NATIONAL GEOGRAPHIC STAFF

An American development, Liederkranz, was discovered in 1892 by Emil Frey, an apprentice cheesemaker in New York. While trying to produce a domestic Bismarck cheese, he stumbled across a process that produced a new type of gold-crusted, soft-ripening cheese. He named it for a singing society that enjoyed the first samples.

In 1926, Frey shifted his cheese-making to a new plant in Van Wert, Ohio. The first batch of milk run through the sparkling machinery came out a sorry mess. Microscopic organisms that produce the flavor hadn't moved with the plant. Shelving and wood work from the old site were rushed to Ohio, and walls were smeared with ripe cheese. Another batch of milk was processed, and presto!—Liederkranz. F.S.

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HOWELL WALKER, NATIONAL GEOGRAPHIC STAFF

CHEESE – The Happy Accident

THOUSANDS of painstaking craftsmen around the world devote their talents to imitating mistakes.

They are the makers of cheese, toilers in an industry based on accident. No one knows just when the first cheese was made, but the traditional story is that some traveler carried milk in a canteen made from a sheep's stomach. When he sat down to lunch he found that the milk had separated into a watery liquid—whey—and soft white solid—curd. The change was brought about by a digestive juice called rennin, present in the original canteen.

Nutritious and tasty, more easily kept than milk, cheese became a staple food in the East and at one time was used as money.

Since those early days, more than 2,000 years before Christ, cheese has spread around the world. In almost every country where animals are milked, some form of cheese is made. Cow's milk is most often used, because more cows are milked than sheep, goats, buffalo, horses, camels, asses, yaks, reindeer, or zebus—but each of these animals provides the raw material for some cheese.

Although most cheese is made in the same way as the first discovery—by the addition of rennin—differences in milk and treatment produce distinctive kinds. France, the scene of the open air delicatessen above, claims 435 separate kinds—ranging from the simplest farmhouse products to glamorous gourmet viands.

One of the most famous, Roquefort, illustrates the accidental tradition perfectly. It is believed to have been first made when a shepherd left his lunch—barley bread and sheep's milk cheese—in a cave while chasing an unruly flock. Several weeks later, he found that the cheese had becomed veined with blue mold. It was delicious. Today, monks cure Roquefort in the same, naturally air-conditioned caves.

The friendly mold that gives the characteristic flavor is *Penicillium roqueforti,* similar to the mold that produces the drug penicillin.

Pure cultures of the mold have been imported to the United States and other

"The city is a heady blend of East and West," writes Howard La Fay in the June, 1960, *National Geographic*. "In the Place du Gouvernement, blind musicians chant Arabic sagas while students unravel atomic mysteries in the university's near-by Institute of Nuclear Studies. On the terraces of chic cafés along the Rue Michelet, Europeans idle over apéritifs while chastely veiled Moslem women glide past their tables."

In spite of the war-brought distrust which demands that dinner-jacketed patrons be searched before entering a casino, and that movie-goers be forbidden to leave before the film ends, Algiers is a boom town. Waiting lists for housing grow faster than new apartments can spring up.

In the busy harbor, ships unload coal, wood, steel, and cement to feed Algeria's growing industries. They steam away laden with fruits, vegetables, and wine.

South of the Tell towns and cities thin out. Mountains rise; on their slopes for a thousand years isolated Moslems have tended flocks of sheep, cattle, and goats.

Today, the French are trying to lift these herdsmen out of their centuries-old poverty in an effort to win their allegiance. Boys and girls learn arithmetic and French in new schools. Moslem women with marks tattooed on their foreheads and cheeks bring their children to new infirmaries. Families move into new villages with neat white duplex houses fronted with blue doors—Arab tradition says blue repels flies. Recently-laid pipelines carry water from springs to villages, saving women the drudgery of toting it on their shoulders.

South of the Atlas Mountains, Algeria is all brown Saharan rock and sand, except for an occasional oasis where water comes to the surface. Even oasis towns rest on dry sand so all irrigated land can

Algerian Alps—Green pastures lie below the snow-crested Djurjura Mountains, part of the Atlas chain (right). Only 30 miles from the sun-washed city of Algiers, sportsmen ski (below) 5,100 feet high on the snows of the Atlas Mountains. These peaks, some more than 7,000 feet high, separate the fertile valleys of the north from the desert of the south.

MAYNARD OWEN WILLIAMS

SERVICE CINEMATOGRAPHIQUE DES ARMÉES, ALGERIA

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J. BELIN

ALGERIA – France in North Africa

FRANCE'S GREATEST problem today is Algeria – politically fused to it, geographically separate, and emotionally torn.

Spreading along Africa's Mediterranean coast between Morocco and Tunisia, Algeria, with 920,000 square miles, is more than four times the size of continental France. Still little developed, it includes white-thatched mountains, a rich green strip beside the sea, and millions of acres of tawny, dry Sahara, spotted with a few oases (above). Here, a wealth of oil, natural gas, and minerals has been discovered.

Exploitation of these riches goes forward, but is hindered by the war that has gripped Algeria for nearly six years. About 90 per cent of the country's 10,600,000 people are Moslems. The remainder are European settlers: mostly French, Spanish, Italian, and Maltese.

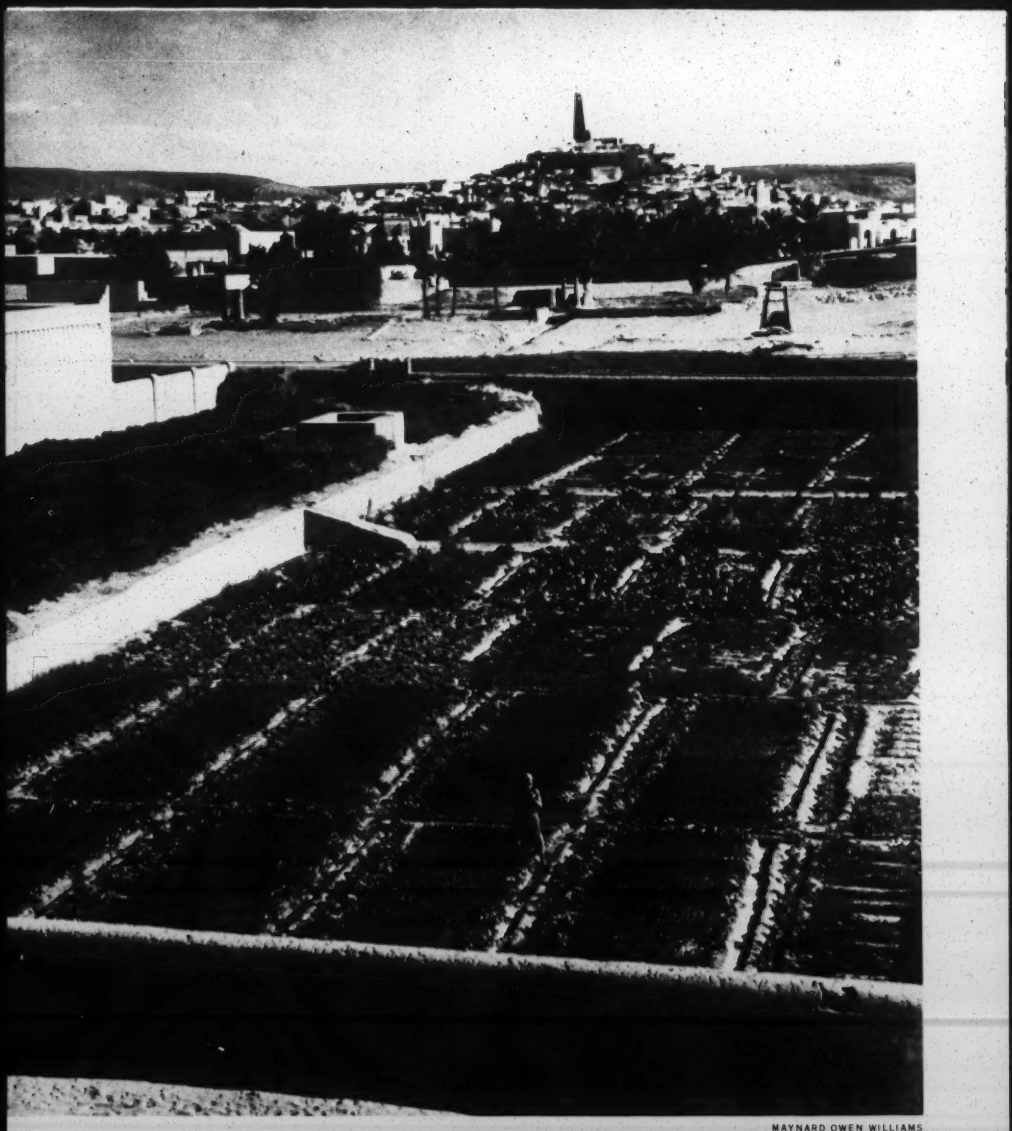
In a grim struggle for independence from French rule, the Moslem *Front de Libération Nationale*, or F.L.N., terrorizes not only Europeans, but also Moslems friendly to Europeans. Just as grimly the Europeans guard their French citizenship and the status quo.

And the war goes on – not an open warfare between the 450,000 French soldiers and the 50,000 Moslem troops, but the war of the surprise, of the guerrilla. A bomb rolls into a café; a bus is ambushed; a man is kidnaped; a grenade explodes in a store window. Both Moslems and Europeans are guilty of armed outrages.

Most of Algeria's people live on the Tell, the fertile green strip along the Mediterranean. They have covered its slopes with vineyards and olive trees. Green fields, vegetable gardens, orange and fig groves nestle in the valleys.

Cities have risen along the Mediterranean where bays make good harbors.

In the center of Algeria's 620-mile coast stands the capital, Algiers, where an estimated 600,000 people live along winding, hilly streets.



MAYNARD OWEN WILLIAMS

nuture crops, as in Ghardaïa, above. The tents of nomadic, camel-riding Tuareg spot the desert. Otherwise the monotonous expanse spreads uninterrupted—until recently.

Now other kinds of oases have come. France exploded its first atom-weapon over the Sahara. At Reggan the French have built their own Cape Canaveral from which rockets scream over an ocean of desert.

Industry, too, invades the south. Geologists have discovered a million tons of manganese ore and an immense vein of iron. Natural gas and petroleum deposits feed both Algerian and French industry.

Four years ago Hassi Messaoud—prophetically, the name means "blessed wells"—was a hot, wind-swept caravan stop. Then oil was discovered. Today 7,000 workers, when they finish a shift among the derricks and tanks, swim in a company pool, play tennis, go to a movie, or stroll in a garden with 500 imported birds. Air-conditioned hotels serve guests. Last year a sports car rally attracted drivers from Algiers. L.B.

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